



**ST JOSEPH'S INSTITUTION  
END-OF-YEAR EXAMINATION 2021  
YEAR 1**

CANDIDATE  
NAME

**MARKING SCHEME**

CLASS

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INDEX  
NUMBER

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**GEOGRAPHY**

**29 September 2021**

Additional Materials : Writing Paper

**1 hour 20 minutes  
(0800 – 0920)**

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**READ THESE INSTRUCTIONS FIRST**

Write your class, index number and name on all the work you hand in.

Write in dark blue or black pen.

Do not use staples, paper clips, glue or correction fluid.

Start each section on a separate writing paper.

**Submit Sections A and B separately.**

The number of marks is given in brackets [ ] at the end of each question or part question.

40

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This document consists of 11 printed pages including this cover page.

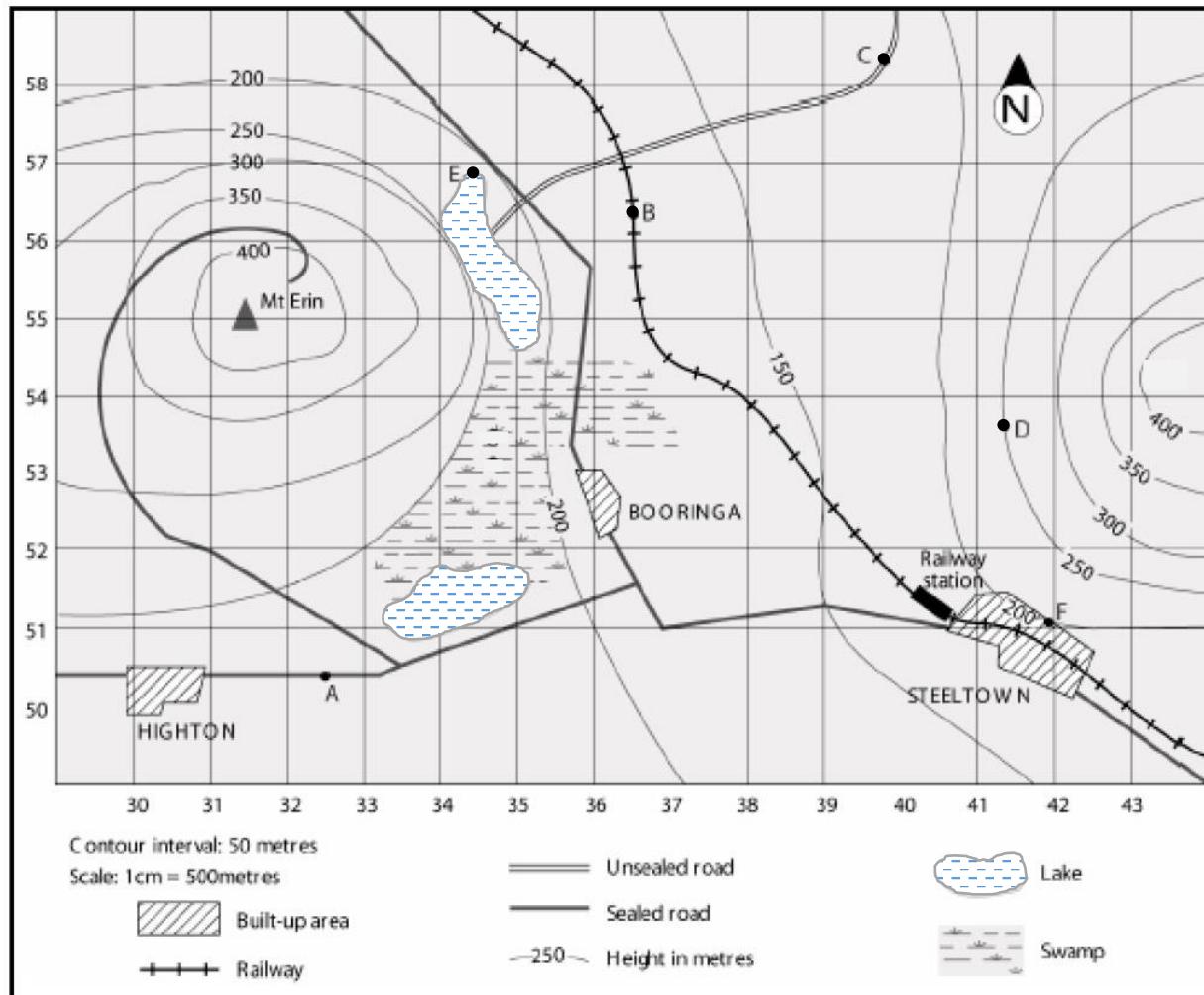
**[Turn Over]**

## **SECTION A: Topographic Map Reading (8 marks)**

Answer **ALL** questions.

Write your answers on the **Writing Paper** provided.

1. Study the section of map extract from a simple topographic map.



Source: <http://www.jaconline.com.au/downloads/sose/topographic-skills.pdf>

(a) How much higher is the land at point D than at point F? [1]  
• *50 metres*

(b) What is the highest possible height of Mt Erin? [1]  
• *449 metres*

(c) In which direction would you travel to reach point A from point C? [1]  
• *Southwest*

(d) What is the grid square of another similar physical feature to point E? [1]  
• *3451 or 3351*

(e) What is the six-figure grid reference of the point where the railway intersects with the unsealed road? [1]  
• *364571 ( $\pm 1$ )*

(f) Which town, Highton or Steeltown, has the shortest straight-line distance to point B? What is the distance? [1]  
• *Steeltown is 3.95km from point B ( $\pm 250m$ )*

(g) In which direction can Booringa town expand and why? [2]  
• *Eastwards*  
• *The east side of Booringa town does not have any physical feature that obstructs its expansion, unlike the west where there is the presence of a swamp.*

## **SECTION B: Structured Questions (4 x 8 = 32 marks)**

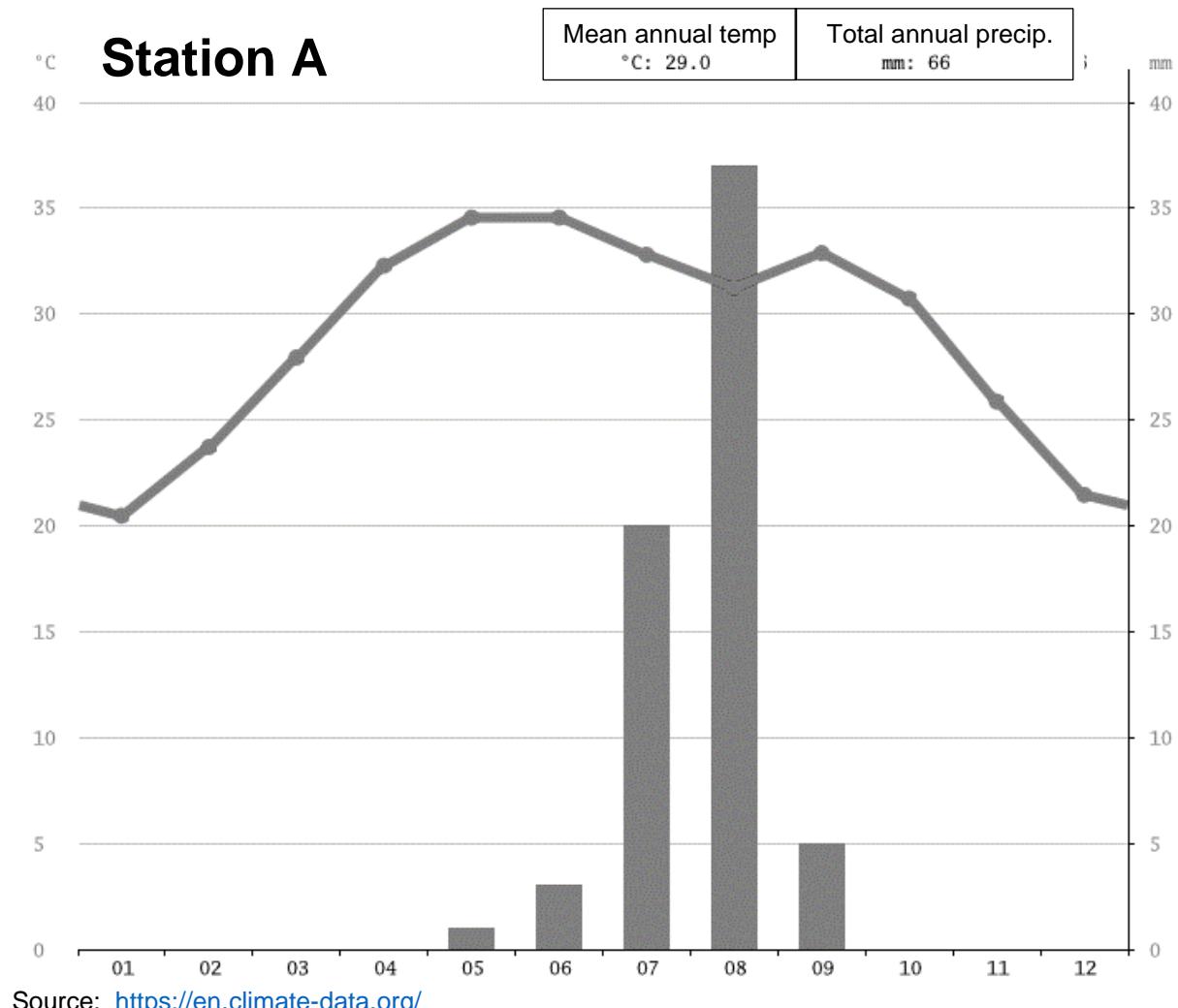
Answer **ALL** questions.

Write your answers on a fresh piece of **Writing Paper**.

2. Figures 1A and 1B show the temperature and precipitation of Station A and Station B, respectively.

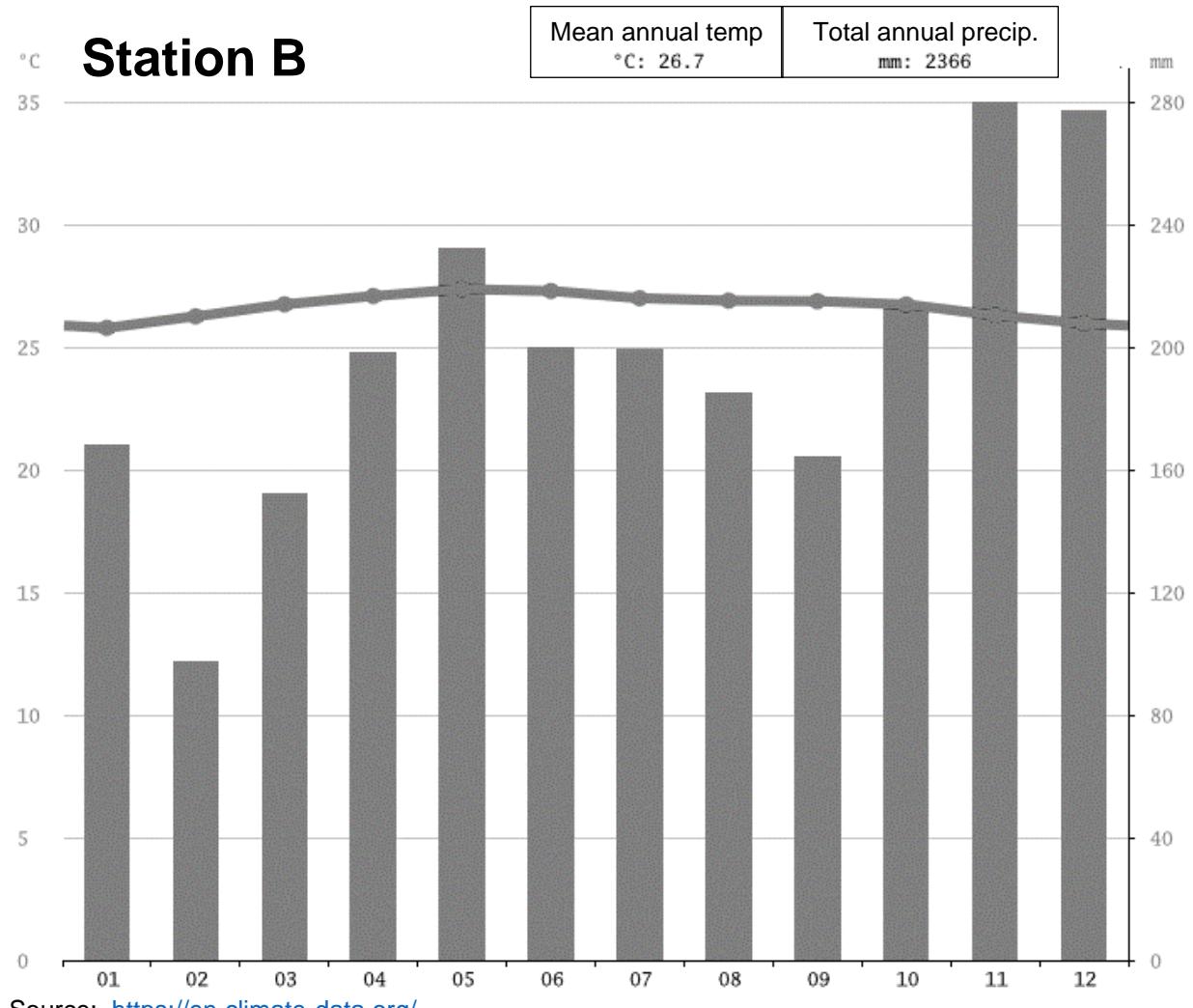
**Fig. 1A**

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Yearly
Temp. (°C)	20.5	23.7	27.9	32.3	34.6	34.6	32.8	31.3	32.9	30.7	25.9	21.5	29
Precip (mm)	0	0	0	0	1	3	20	37	5	0	0	0	66



**Fig. 1B**

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Yearly
Temp. (°C)	25.8	26.2	26.7	27.1	27.4	27.3	27	26.9	26.9	26.7	26.3	26	26.7
Precip (mm)	168	97	152	198	232	200	199	185	164	214	280	277	2366



(a) Study **Fig.1A** and **Fig.1B** and identify the climate for

- (i) Station A [1]
- (ii) Station B [1]

- *Station A: Arid tropical climate (hot and dry)*
- *Station B: Humid tropical climate (hot and wet)*

(b) Use **Fig.1A (Station A)** and describe the distribution of

- (i) temperature, and [2]
- (ii) precipitation. [2]

Temperature

- *The distribution of temperature of Station A fluctuates with the highest temperature of 34.6°C in May and June and the lowest temperature of 20.5°C in January.*
- *Its mean annual temperature is high at 29°C.*
- *With a large temperature range of 14.1°C.*

Precipitation

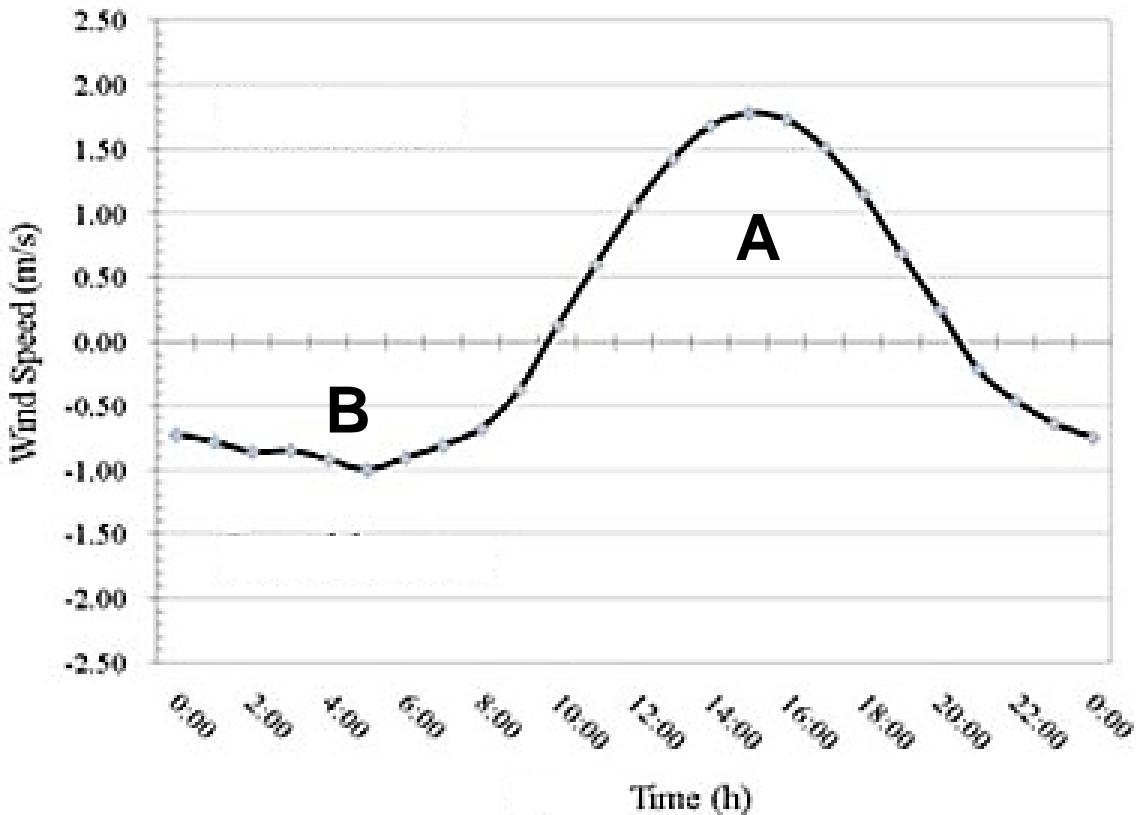
- *Station A has low precipitation with a total annual precipitation of 66mm.*
- *There are seven months in a year with no precipitation.*
- *The remaining months have low precipitation, with August receiving the highest precipitation of 37mm, followed by July with precipitation of 20mm.*

(c) Explain why there is a great difference in precipitation received by Stations A and B. [2]

- *Station A is located along the latitudes 15-30°North and South of the equator where the descending cool air suppresses the rising warm air resulting in conditions where rainfall is low.*
- *Station B is located along the equator where warm moist air rises and eventually condenses to form heavy rain.*

3.(a) Figure 2 shows a line graph on wind speed data at a coastal town.

**Fig. 2**



Source: <https://ars.els-cdn.com/content/image/1-s2.0-S1309104215305225-gr4.jpg>

(i) Which section of the line graph shows data of sea breeze? [1]

- *Section A*

(ii) Explain your answer in 3(a)(i). [4]

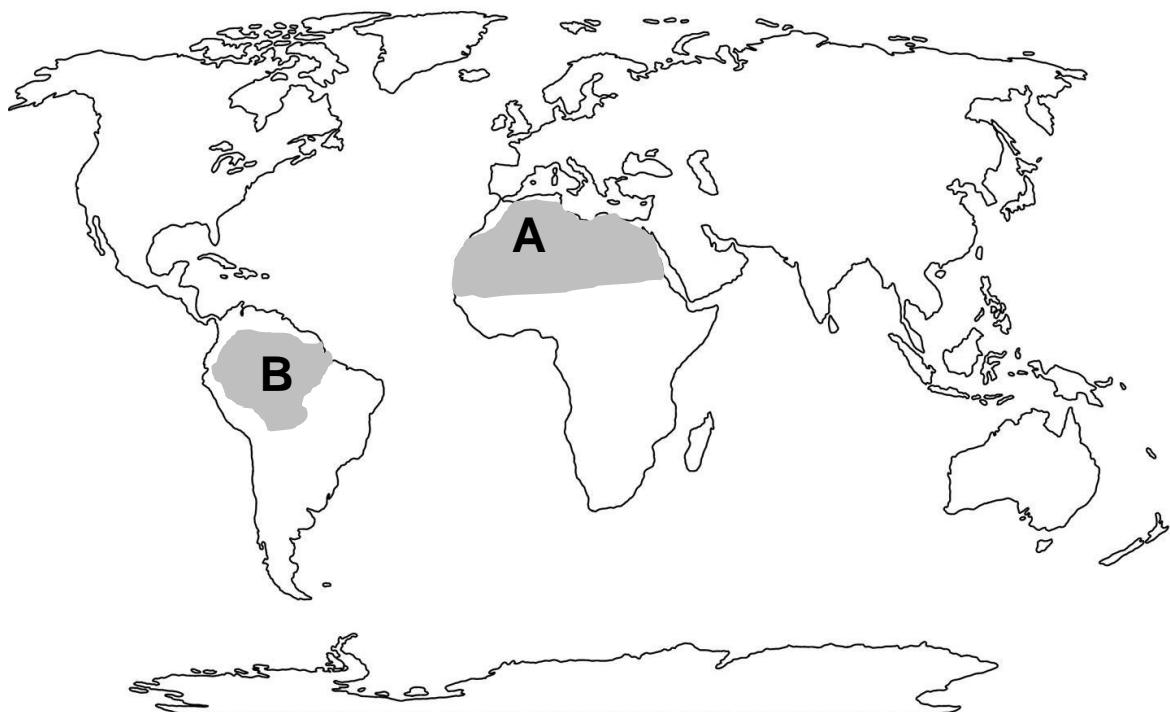
- *Evidence: The wind at Section A occurs between 10am to 8pm, during the day.*
- *Explanation: During the day, the land heats up faster than the sea so the land temperature is high, creating an area of low pressure.*
- *Explanation: The temperature over the sea is cooler than the land, thus creating an area of high pressure.*
- *Explanation: In an attempt to achieve equilibrium, the air over the sea, which is high pressure, rushes towards the land, which is low pressure. This movement of air from sea to land is known as sea breeze.*

(b) Explain why tropical deserts have high mean annual temperatures. [3]

- *Point: The tropical deserts are located within the tropical region where the angle in which the sun's radiation hits the Earth's surface is high.*
- *Explanation: As deserts usually experience cloudless skies, the sun's radiation will pass through less clouds absorbing and reflecting less heat, thus, more will reach the Earth's surface.*
- *Explanation: Due to the high angle of sun's radiation, the sun's radiation will be concentrated over a small area, resulting in higher temperatures.*

4.(a) Figure 3 shows a map with the locations of two types of natural vegetation.

**Fig. 3**



Source: <https://i.pinimg.com/originals/22/92/53/229253d43ef11f7267b1a51e7b18642e.jpg>

Study **Fig.3** and identify the type of natural vegetation found in

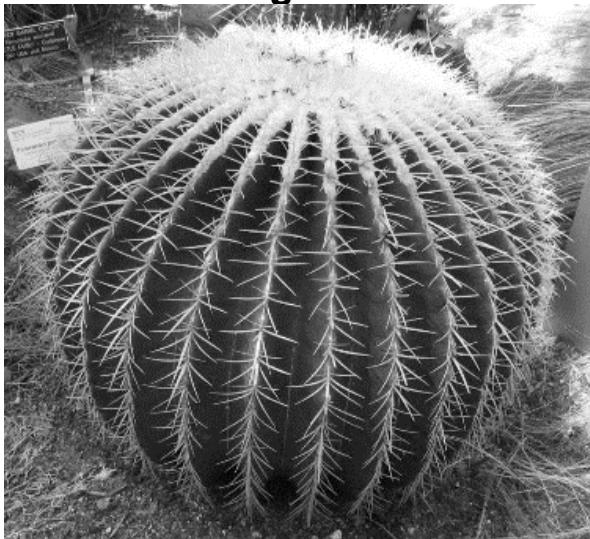
(i) Location A [1]

(ii) Location B [1]

- *Location A: Desert vegetation*
- *Location B: Tropical rainforest*

4.(b) Figures 4A and 4B show two plant species.

**Fig. 4A**



Source: <https://commons.wikimedia.org/>

**Fig. 4B**



Source:  
[https://live.staticflickr.com/209/512073464\\_83e8adade6\\_z.jpg](https://live.staticflickr.com/209/512073464_83e8adade6_z.jpg)

(i) Study and use **Fig.4A** and **Fig.4B** to describe the main difference [2] between their leaves.

- *The plant species in Fig.4A has white needle-like leaves whereas*
- *the plant species in Fig.4B has waxy leaves with drip tips.*

(ii) Study and use **Fig. 4A** to explain how climatic conditions have [4] influenced at least two ways in which it survives.

- *Point: The plant in Fig.4A grows in the desert with high temperatures and very low precipitation.*
- *Explanation (1): Due to the high temperatures, the plant has white needle-like leaves where the white aids in reflecting light, thereby reducing heating and*
- *Explanation (1): the needle-like structure reduces water loss through evapotranspiration as there is no or very little stomata present in the leaf.*
- *Explanation (2): To survive with very little rain, the plant has a succulent and expandable stem to enable the plant to take in and store as much water as it can when rain occurs. The water will then be stored and used during dry periods.*
- *Explanation (2): The pleats/ridges/ribs on the stem aid in channelling rainwater quickly to the roots for absorption and storage.*

5.(a) Figure 5 shows a type of weathering process.

**Fig. 5**



Source: [https://www.geocaching.com/geocache/GC4ZH2F\\_konkoonsies?guid=52ebb26d-2057-4a42-8659-8dce722b890f](https://www.geocaching.com/geocache/GC4ZH2F_konkoonsies?guid=52ebb26d-2057-4a42-8659-8dce722b890f)

(i) Study **Fig. 5** and identify the type of weathering process. [1]

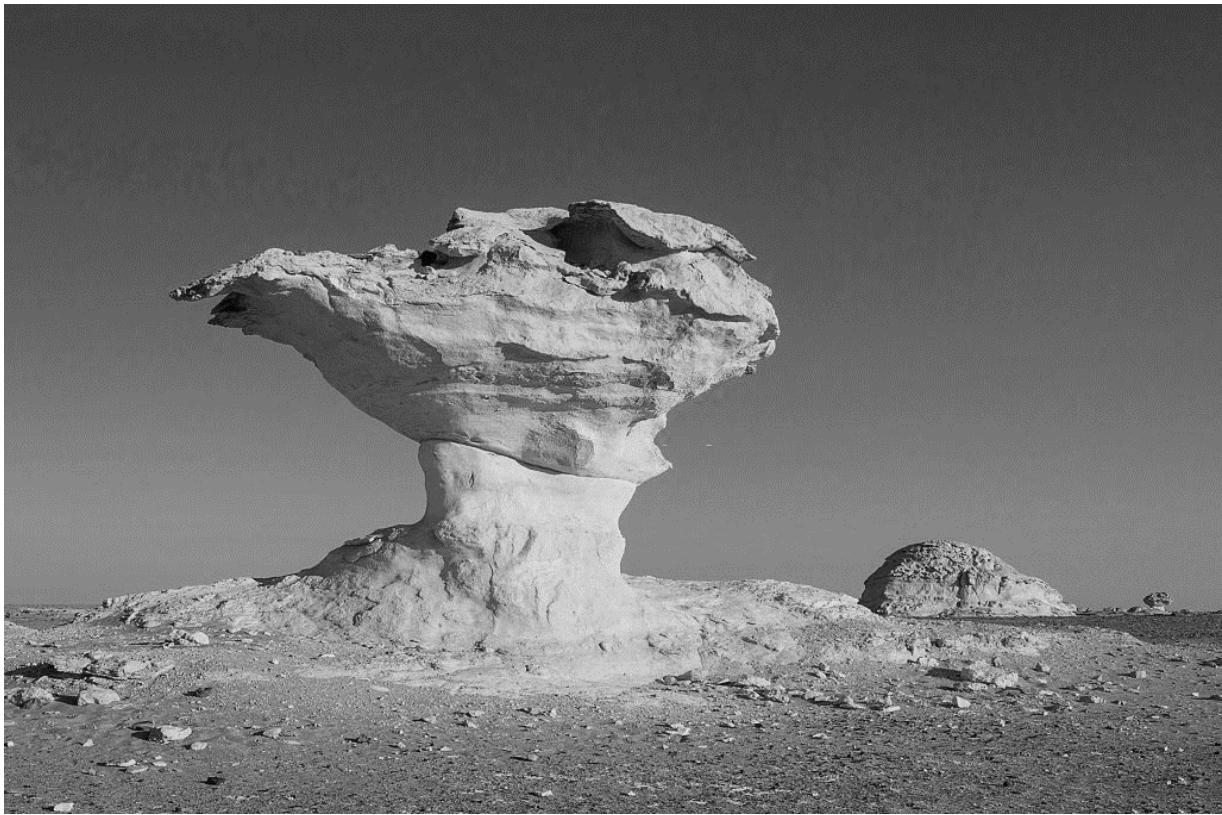
- *Thermal expansion and contraction. – NOT TESTED IN 2023 EYE*

(ii) Study and use **Fig. 5** to explain the way the rock looks. – NOT TESTED IN 2023 EYE [3]

- *The outer layers of the rock is broken down and “peeled away”/exfoliated*
- *This happens when the rock experiences extreme fluctuation in temperatures, especially in deserts when day temperatures can go above 35°C and night temperatures can be as low as 0°C*
- *So, when day time temperature is high, the outer layer of the rock expands. The outer layer of the rock contracts during night time when temperature is low.*
- *Over time, the rock forms cracks parallel to the outer layer and slowly, the outer layer of the rock falls off and “peels away”.*

5.(b) Figure 6 shows a rock feature.

**Fig. 6**



Source: <https://1.bp.blogspot.com/-HsxCTqODSrQ/XuDXqWZMqEI/AAAAAAAADyY/xJToMkuECDIwdJxDeKegoGuXKjB6TT2QwCLcBGA/sYHQ/s1600/2Brocks%2Bin%2BWhite%2BDesert%252C%2BEgypt%2B3.jpg>

(i) Study and use **Fig. 6** to describe the way the rock feature looks. [2]

- *The base and the top of the rock feature is broad/wide.*
- *The middle section of the rock feature is narrower than the top and base.*

(ii) Explain your answer in 5(b)(i). [2]

- *The base and the top of the rock feature is made up of more resistant layers of rock than the middle section.*
- *With the most erosive zone being 0.5 to 1.5 metres from the ground, the middle section of the rock feature is therefore more eroded, leaving behind a narrow middle section.*

**End-of-paper**